



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,922	12/23/2003	Nagesh R. Basavanhally	Basavanhally 32-9-4	9018
46850	7590	08/29/2005		
MENDELSON & ASSOCIATES, P.C. 1500 JOHN F. KENNEDY BLVD., SUITE 405 PHILADELPHIA, PA 19102				
			EXAMINER DUPUIS, DEREK L	
			ART UNIT 2883	PAPER NUMBER

DATE MAILED: 08/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center">Office Action Summary</p>	Application No. 10/743,922	Applicant(s) BASAVANHALLY ET AL.	
	Examiner Derek L. Dupuis	Art Unit 2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13-25 and 27-29 is/are rejected.
- 7) ☒ Claim(s) 12 and 26 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12/23/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/23/03 & 7/13/05</u> . | 6) <input type="checkbox"/> Other: ____. |

DD

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statements (IDS) submitted on 12/23/2003 and on 7/15/2005 have been considered by the examiner.

Specification

2. The disclosure is objected to because of the following informalities: the patent application number shown in line 18 of page 5 should be updated to reflect the current status of the application. As such, the words "U.S. Patent Application No. 10/261,089" should be replaced with "U.S. Patent No. 6,850,354". Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 7, 10, 11, 13, 14, 20, 21, 24, 25, and 27-29 are rejected under 35 U.S.C. 102(e) as being anticipated by *Chilton (US 6,623,177 B1)*.
5. Chilton teaches a coupler assembly and a method for coupling as shown in figures 1, 3, and 5-7. As shown in figure 1, a plurality of circuit packs (24) with optical transceivers are connected to an optical backplane (22) (see column 2, line 44 through column 3, line 8). Figure 2 shows that a plurality of optical pipes in the backplane can carry multiple optical signals between transceivers. The assembly taught by Chilton includes multiple movable portions to assist in

alignment between the backplane and the circuit pack so as to provide optical coupling. A resilient member operates as a locating mechanism to provide alignment (see column 9, lines 22-38). Connector assemblies 32 and 28 shown in figures 3, 5, and 6 include flexible fiber portions (46, 126). The connector assemblies 32 and 28 can move relative to one another and are aligned by the tapered portions of the connector heads. Figure 2 shows that multiple signals can be transmitted along multiple waveguides and are coupled via multiple flexible fibers. As shown in figure 1-6 and as described above, the coupler assembly includes a first head (28) connected to the backplane and a second head (32) connected to the optical transceiver of the circuit pack that are adapted to move relative to one another. The flexible optical fiber portions (46 and 126) are bent.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-6, 14-20, 28, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Rode et al (NPL)* and further in view of *Gates et al (US 6,823,101 B2)*.

8. Rode et al teach a coupler assembly and a coupling method for coupling an optical transmitter of a circuit pack to an optical pipe of a backplane to which the circuit pack is connected as shown in figures 1 and 2. In the figures, Rode et al teaches that each circuit pack can transmit and receive optical signals. While Rode et al do not explicitly teach that the transmission device is a transceiver, it is routine and common in the art to use optical

Art Unit: 2883

transceivers in place of optical transmitters so as to make a device capable of bi-directional transmission. The optical pipe is used to transmit light signals through the backplane as is shown in figure 1. The optical pipe comprises two waveguides as shown in figure 1 for transmitting two optical signals between the modules. Rode et al teach using fixed lenses and mirrors to accommodate misalignment between the backplane and the circuit pack rather than a movable optical element.

9. Gates II et al teach that movable MEMS mirrors can be used to couple and direct an optical signal (see column 1, lines 11-24). Gates II et al teach that by dynamically controlling the orientation of a MEMS movable mirror a light beam can be directed in a desired direction so as to achieve a desired optical coupling (see column 1, lines 11-24). Gates II et al also teach that movable mirrors can track changes in relative orientation between transmission points to maintain optical coupling (see column 2, line 58 to column 3, line 12).

10. It would have been obvious to one of ordinary skill in the art at the time of invention to modify the coupler assembly and coupling method of Rode et al by using movable MEMS mirrors as taught by Gates II et al in place of the fixed lenses and mirrors. Motivation to do this would be that calibrated MEMS mirrors allow for good signal routing (see column 1, lines 11-24 of Gates II et al) and good alignment (see column 4, lines 32-35).

11. Claims 8, 9, 22, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Chilton (US 6,623,177 B1)* as applied to claims 1, 7, 10, 11, 13, 14, 20, 21, 24, 25, and 27-29 above, and further in view of *Kim et al (US 6,839,476 B2)*.

12. Chilton teaches that flexible fibers can be used in coupling light. However, Chilton does not teach that fibers with angled surfaces can be used to couple light. Kim et al teach an optical

Art Unit: 2883

coupling device shown in figure 7. The fiber has an angled surface of 45 degrees as shown in the figure. It would have been obvious to one of ordinary skill in the art at the time of invention to modify the coupling assembly of Chilton by using fibers with angled surfaces as taught by Kim et al. Motivation to do this would have been to create interconnections in an "L" or inverted "L" shape (see column 10, lines 40-43) without having to bend the fiber which is known to result in signal attenuation.

Allowable Subject Matter

13. Claims 12 and 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. The following is a statement of reasons for the indication of allowable subject matter:

15. Claims 12 and 26 are allowable over the prior art of record because the latter, either alone or in combination, does not disclose nor render obvious a coupler assembly to provide optical coupling between an optical transceiver of a circuit pack and an optical pipe of a backplane comprising a flexible optical fiber adapted to guide light between the optical transceiver and the optical pipe and to accommodate misalignment between the backplane and the circuit pack and further comprising first and second heads adapted to move with respect to each other wherein when the first head moves with respect to the second head, the flexible fiber is bent, and wherein the first and second heads are connected by a flexure in combination with the rest of the claimed limitations.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derek L. Dupuis whose telephone number is (571) 272-3101. The examiner can normally be reached on Monday - Friday 8:30am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Derek L. Dupuis
Group Art Unit 2883



Frank G. Font
Supervisory Patent Examiner
Technology Center 2800